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A Future in Pedodontics

John C. Brauer, *President, A.S.P.D.C.*

The practice of pedodontics is rapidly becoming one of the attractive fields, both in the general practice and as a specialty. The general practitioner always will carry the major load in the care of the child, dentally speaking. Since dental decay is almost universal among children, those children in the many smaller cities, towns, and rural areas always will be within the realm of the man in general practice.

The problem of location and the problem of whether to specialize or not to specialize confronts nearly every graduate. Virtually every graduate has thought at one time or another in terms of specialization, and today one of the most popular trends is toward pedodontics. This field claims an appreciable number of men and women who enjoy a high type of clientele and a most successful practice.

Frequently the question is asked, "How large a city must one consider in order to limit ones practice to pedodontics?" The answer to this question becomes a most difficult one in that there are a large number of factors to be considered. The financial structure and incomes of the great bulk of the population play an important part as to the probable success in a given community. The lower the net income of the average citizen, the larger must be the city; for instance, there is no doubt that some cities of 50,000 would afford excellent opportunities, while others of 150,000 might be a poor risk. In certain sections of the country, where dental health education programs have been in progress for a number of years, success could be anticipated in the smaller cities. The future looks much more promising in this latter respect, for nearly every State Department of Health now possesses a dental division which has for its objective, lay education as it pertains to the child.

A number of dental schools now are offering graduate and post-graduate instruction in dentistry for children. A graduate course leading to an M.S. degree requires at least one year of additional work, while courses of two or four weeks duration in post-graduate instruction usually lead to a certification. One may very profitably obtain a two weeks or a four weeks concentrated course and feel that the time has been very well spent.

In addition to the above, there are such dental institutions as Forsyth, Guggenheim, Rochester, and others, that afford internships of a very helpful and instructive nature to young graduates.

It is the writer's opinion that those dentists interested in dentistry for children have a most optimistic future, both as general practitioners and as specialists. The American Society for the Promotion of Dentistry for Children rightfully can claim to be the motivating agency in the change of attitudes among many in the profession and to the stimulating of lay educational programs.

The Past, Present, and Future of the A.S.P.D.C.

Floyde E. Hogeboom, *Past-President*

There have always been a few dentists who championed the care of children. Immediately after the war, a group of dentists devoted to better dental care for children gathered at Kansas City and organized a pedodontia society. Due to various reasons, this organization was still-born. The genuine enthusiasm of many kept urging the need of a real live, vital society. So, at the Detroit meeting of the A. D. A. in 1927, a group of young, enthusiastic dentists, known as the Michigan Study Club, sent out a call to form an organization whose main interest was dental care of childhood. At this historic meeting, the American Society for the Promotion of Dentistry for Children was born, with Dr. Walter McBride, of Detroit, as president, and Dr. Samuel Harris, of Detroit, as secretary. It has continued to live and has been phenomenal in its development. From a handful of men, who would meet in someone's room to show a small table clinic or two, it has grown to over 700 members. The St. Louis annual meeting had over thirty table clinics and demonstrations, together with several internationally known essayists.

The future depends on the young men graduating from our schools. The ideals of this organization will be upheld and advanced by the enthusiasm of the group graduating at this time. The A. S. P. D. C. is now entering its adolescence and is seeking to adjust itself from a purely promotional group to a group supporting better individual training of the dentist in pedodontia. It is showing a tendency to pursue research in children's dentistry. The fact that it is attempting to clarify its position in regard to specialization requirements shows a trend toward a standardization of dental care of children.

Why should the young graduate, who has all dentistry to choose from, select this field of endeavor? First, because it offers a great ideal to work towards. Second, the next few years will bring about more attention to prevention of disease in all fields, with government directions and support behind it. Third, those who care for children always have plenty of work to do and have a practice which is full of new interests and activities every day of active practice.

Inertia and lack of vision in days past are largely responsible for so little progress in many fields of dental service. Negatively speaking, "Where there is no vision, the people perish." Positively, where there are young, enthusiastic dentists, with vision, who are interested in childhood and the great ideals of their profession, the people live a stronger, happier, fuller, more useful life. This field of dental life work is a call and a challenge to the new graduate. While you are reading this, will you not think seriously of the opportunity extended to you to join in this fight against disease, and through your professional life be a member of an organization worthy of the great ideals of dentistry? The future lies with you.

Health Education Courses for Dentists and Hygienists*

J. M. Wisan, *Elizabeth, N. J.*

In an attempt to plan a dental health program, a high school principal invited a dentist to address a teachers' meeting on the subject "Teaching Pupils the Value of Dental Health." The speaker's knowledge of mouth conditions was profound, but his knowledge of educational principles was negligible. His training in health education consisted of managing a dental health poster contest, arranging a dental speakers' bureau, and acting as chairman of a dental society oral hygiene committee. It was not surprising, then, that his suggestions proved inconsistent with the objectives of the school administration. Since the program he offered was based on obsolete traditional methods, his audience proved polite but indifferent. Lack of educational training was his undoing. Such occurrences can be prevented. Dentistry's future in the public health field is rich with potentialities. Advances made in the past few years are indicative of the possibilities of even more rapid strides in the future. Both dentists and hygienists are expressing progressive public health viewpoints and displaying leadership in promulgating dental health programs. As public health trends develop, will the prestige of dentistry in public health fields be maintained?

To attain a ranking as dental health educators, dentists and hygienists must be able to inform and guide, among others, laymen, nurses, classroom teachers, school and health administrators concerning dental health practices. Then, too, they must be competent to select procedures and materials for effective dental health education programs. A primary requisite would seem to be a knowledge of public health. An understanding of the more prevalent and more significant health problems will help orient dental phases. Statistical and research techniques, as applied to public health problems, will be indispensable. Such subjects as Sanitation, Epidemiology, Biostatics, and Nutrition would seem to be necessary. A profound understanding of the history of public health might be stressed. Knowing the trend of public health concepts will help dentists and hygienists plan future dental programs with an eye to long range objectives. Human relationships and social formations, since they affect the lives, needs, and struggles of individuals and groups, are involved in dental programs. Sociology, then, looms as a basic study. The structure of incomes as an expression of current economic life should be understood. Dental health practices are so closely tied up with community, family, and individual finances that the subject of economics must be included in the proffered list of studies. Dental health

*Abstracted from a paper read before the Eighteenth Annual meeting of the American Dental Association, St. Louis, Missouri, October, 1938, and submitted for publication in the JOURNAL of the American Dental Association.

educators may well study the genesis of beliefs and opinions and how they play their part in furthering mental operations which influence behavior. Thus, the importance of courses in biology and psychology becomes evident.

Since dental health education is to reach parents and children as well as those who are actively engaged in teaching, the dental health educator should be well informed of the history of education, the various philosophies of education, and educational psychology. Then, too, he must have a working knowledge of adult education, early childhood education, elementary and high school education, and teaching in institutions of higher learning. Health education techniques for the radio, health center, interview, newspaper as well as other written materials, and visual aids are likewise significant for the dental health educator.

It is amazing how much help a dentist with educational background can give to classroom teachers planning to use activities and teaching units to carry on dental health educational programs. Community leaders cooperate more readily with dentists who have indicated superior knowledge of current public health and educational trends. To such dentists will be given more responsibility in promulgating public dental programs for adult education.

In the past almost all education and public health schools provided courses for dentists and hygienists who had to make their own selection and application. Courses were accredited toward the various degrees with no thought of dental health education programs. This is still true in many states. We now find, however, that a few educational institutions, influenced by the Federal Social Security Act, are beginning to realize the need of courses specifically planned for dentists and hygienists interested in *dental* public health programs.

As dentists become trained in the social sciences and health education, they may be given the responsibility of presenting courses to dentists and hygienists in public dental health schools. They may likewise give accredited, educational courses to nurses, teachers, and social workers in teacher training institutions. This is suggested because the application of such courses to dental problems may be made more practical if offered by qualified dentists or hygienists. There is another reason for training dentists and hygienists to give dental health education courses to nurses and classrooms teachers. Every nurse and every teacher taught to participate in the dental program reinforces the ranks of dental health educators. One dentist, offering courses in various sections of a state, can enlist hundreds of field workers and classroom teachers in a widespread dental health program. Just as school teachers and nurses in service have ample opportunities for accredited extension training, so should dentists and hygienists find facilities for accredited public health education. Social Security funds may be utilized for this purpose. Undoubtedly, extension of the scope of such courses will be encouraged as the national Social Security program develops.

Space-Maintainers

From among the replies to the question, "What are Your Observations Concerning the Value of Space Maintainers?", two which provide the most detailed and practical comment are reproduced.

J. Walter Ford, *St. Louis.*—It is my contention that the best space maintainer in a child's mouth is a vital foundation tooth filled or unfilled. The next best is a non-vital foundation tooth with the canals properly sterilized and filled and a restoration of some type for the crown portion. The least desirable space maintainer is the so-called mechanical space maintainer which is used when a foundation tooth is extracted. Its use should be the exception rather than the rule.

There are methods available by which most non-vital foundation teeth canals may be sterilized and filled so that those teeth may remain in place and function until the permanent teeth move crown-wise to replace them. The regular pointed metal or gutta percha root canal points have little use in such a technic. In their stead, use sections of base plate gutta percha slightly smaller than the canals and having rounded ends to avoid causing hemmorhage in canals with large open apices. An antiseptic paste is placed in the canals before the sections of base plate gutta percha are gently teased to place and covered with a bit of cement. Next visit, a restoration is placed in the crown, restoring chewing efficiency.

Most mechanical space maintainers do not maintain chewing efficiency, which stimulates dental development. Perhaps the only legitimate excuse for their use is in the very early loss of a foundation tooth through an accident. Most parents who will pay for a space maintainer will pay a fee for restoring a foundation tooth if we have a technic to care for the canals efficiently and with dispatch.

Edward A. Lusterman, *Manhattan Beach, N. Y.*—The value and service of space maintainers are problems well deserving the attention of the American Society for the Promotion of Dentistry for Children. As a society that aims to give point and purpose to its highly esteemed and worthy objectives, we cannot fail to note that a very high percentage of malocclusions is mechanistic in origin and is preventable.

There can be little doubt that one of the most important contributory factors in the etiology of malocclusion is the premature loss of deciduous molars. The general practitioner must be taught and trained to understand the normal processes of growth and development and to appreciate the integrity of the deciduous arches as a means toward normal growth, if dentistry aspires to meet its inherent obligation to render a true preventive service.

There is a school of thought that is now decrying the use of space maintainers and makes the plea that they are unnecessary and sometimes may

even cause harm to the developing dentition. A few make this statement on the basis of some study and observation, which purports to show that even without intervention, the arches developed normally despite premature deciduous loss. Unquestionably there is some merit to this argument; I myself have had similar experiences. However, to advise a profession to adopt a *laissez-faire* attitude on the basis of a few results smacks too much of empiricism and is to be heartily condemned until a great deal more research is available to substantiate this line.

Willett and others have shown that, with a knowledge of growth and development, a bio-mechanical approach to this problem has produced salutary results, eventuating in the prevention of many cases of severe malocclusion. My own opinion is that the profession generally, in its teaching and practice, has devoted its talents almost exclusively to adult restoration and hence has no basic scientific background regarding the development of the dentition, which would supply the perspective that is so sorely needed as a prerequisite to the application of mechanical principles for the prevention of malocclusion. There is no doubt that dental teaching today is recognizing this need and is taking means to obviate what has been one of dentistry's glaring deficiencies.

With a concept of growth and development, space maintainers can be, and are being, constructed that have definite value and perform specific service. The danger in their use lies in the fact that they may be so constructed that they will not conform to the known postulates of the developing dentition, and such practice may be harmful.

It was heartening indeed to see the publication of Krogman's article on "Face Growth and Face Value" in the last issue of the "REVIEW." Such studies, supplemented by suggested research and the presentation of clinical material in the Society's activities, will actuate the profession to the point where it will render more than mere lip service to the phrase "preventive dentistry."

Suggested Material for Future Issues of Review

Numerous suggestions have been received concerning the types of material which would be of most value to readers of the "REVIEW" in the practice of dentistry for children. Requests have been made for more detailed information upon the instruction of parents in preparation of their child for his first visit to the dentist; the problem of child management in the office; the application of general anesthesia in children's dentistry; mental hygiene; and authoritative dietary information. As this material can be accumulated, it will be presented to "REVIEW" readers.

1938 Year Book of Dentistry

W. C. McBride, *Detroit*

While this book itself is none other than a survey of the year's literature, it reputedly contains excerpts from the best material written in any given year. It makes a fine annual addition to the growing dental library you have planned. When you have thirty-five or more of these volumes read and on your shelves, you'll no doubt have a good idea of how to practice—faithfully and abundantly, and perhaps with abandon. After that time, dentistry won't make a great deal of difference. This year, if you please, there is a separate division—under the Operative Section—for Children's Dentistry. Certainly, the following data gleaned from its pages are interesting and factual.

Factors Affecting Incidence of Dental Caries in Population Groups:

Using data of the recent survey on the comparative incidence of dental caries in population groups made in the United States Public Health Service, Clarence A. Mills (University of Cincinnati) says: "The increasing incidence of caries from south to north is clearly shown, there being roughly 15 more decayed teeth per 100 children for each added degree of latitude. The explanation based on the decline in sunlight toward the north is supported by the lessened incidence of caries in the upper plains states where there is more sunlight than in the other northern states. This constitutes definite evidence that caries is less prevalent in warmer regions.

"In addition to relation of caries to latitude, there also seems to be some degree of dependence on slope of terrain, caries tending to increase from the headwaters of a river toward its mouth. Where whole states have a more or less general slope, caries is less prevalent in people of the higher region.

"The factor which is believed responsible for this may be related to soil leaching. Almost 30 percent more caries was found among children using river and lake water than among those using water from wells and springs in practically the same latitude. More detailed grouping of the 75 cities, regardless of source of water, suggests that degree of hardness of the water is responsible. A list of cities used in analysis of the relation between hardness of drinking water and caries shows that caries incidence is high in most of the cities of the mining region of Pennsylvania and those of the Ohio River down as far as Cincinnati. Oxidation in mines results in formation of large amounts of sulfuric acid which seeps into the streams of these mining regions and affects the water of the Ohio River, which may be a factor responsible for the high rate of caries. There is also the possible effect of oxidized sulfur liberated into the air by coal combustion.

"There is a trend toward more caries as the use of salt increases. Inci-

dence of perfect sets of teeth was much higher among those adding no salt to their food.

"These observations tend to support the idea that caries is basically a metabolic disturbance and only secondarily a matter of infection. Its geographic distribution in America parallels the distribution of other evidences of metabolic breakdown under the force of climatic stress. Standards for drinking water can no longer be considered only on bacteriologic grounds or freedom from contamination, if proper regard is to be given to tooth preservation. Sharp curtailment of salt intake and use of special drinking water may go far to control active caries."

Both McGregor of Toronto and Tassman of Temple state similar thoughts, quite divergent from middle west operative trends, respectively: "In preparing an M.O. cavity in a molar, never start in the decay but first outline the cavity and then remove the decay.": "A cavity should never be opened at the point of decay if it is a class 2: it is better to open on the occlusal with a knife-edged stone and make the occlusal lock first."

Hogeboom: "The best space-maintainer is a healthy tooth. In general, if a deciduous tooth is extracted a year or more before its average exfoliation time, a suitable space-maintainer should be employed. A successful maintainer is the round wire and buccal tube type. When an anterior permanent tooth is missing, a vulcanite plate is made carrying the artificial tooth."

Simpson, in *"Radiodontia in Children's Dentistry":* "The primary function of pedodontia is to prevent premature loss of the deciduous teeth. At the age of 6, radiodontic examinations are indicated annually or oftener to observe progress of dentition, anomalies that may be present, and root resorptions of deciduous teeth."

Bodecker: "Biologically, the slow physiologic formation of secondary dentin appears to be a more normal process than the hasty laying down of irregular secondary dentin. The ideal technic consists of carefully removing only the leathery decalcified dentin and placing a temporary filling of oxyphosphate cement or of using zinc oxide and eugenol if the cavity is near the pulp. When teeth are too sensitive to complete excavation of the cavity at one sitting, a dressing of pink base plate gutta percha with camphorated validol, left in place one or two weeks, gives surprisingly good results. The temporary filling reduces pulp irritation and gives the pulp an opportunity to build a protective wall of secondary dentin slowly, while if the cavity is prepared completely at one sitting, the sensitive pulp shows this added irritation by the hasty laying down of irregular secondary dentin.

"Capping of the exposed pulp of deciduous teeth involves use of silver nitrate in combination with various dental cements, silver nitrate crystals being added to the cement fluid which is decanted after 24 hours. The mix of the usual consistency for setting inlays is teased over the exposed area

after an application of phenol: when the cement thickens, the rest of the cavity is filled without using pressure. Zinc oxyphosphate and red copper cements are best and form a suitable base for amalgam filling."

J. Kurer, Vienna, in *"Thickness of Enamel-dentin of Deciduous Teeth":* "If in preparation of a cavity the pulp is denuded, it is probable that the same will occur with other teeth of the same patient: on the other hand, successful preparation of a cavity in one tooth practically guarantees success with the other teeth of the patient."

Abstracts and Reviews

J. S. Kauffmann, *New York*

WEST, E. S. and JUDY, F. R. Destruction of tooth enamel by acidified candies. *J. Dent. Research.* 17: 499, 1938.

These investigators at the Dental Clinic of the University of Oregon Medical School used freshly extracted human teeth to test the destructive action of solutions of various hard candies containing citric acid upon tooth enamel. They conclude that when an individual places a piece of ordinary acidified candy, such as cherry, lemon, lime, orange, and pineapple drops, in his mouth and allows it to dissolve slowly against his teeth, the concentration of the solution at the surface of the candy in contact with the enamel will have a pH concentration as high as 3-4. If hard candy sucking is made a daily habit, serious decalcification will probably be the result. The occasional use of such candies has little effect. The buffer action of the saliva in overcoming the candy's acidity is important. Normal saliva did well against 20 percent acidified candy but poorly in more concentrated solutions. Destruction of teeth should vary in different individuals according to the buffer capacity of the saliva secreted. The amount of enamel dissolved does not represent the total destruction. Experiments showed in addition to dissolved enamel a chalky insoluble layer on the surface which could be easily scraped off. The calcium to phosphorus ratio in this latter material was high, due to the exchange of citrate ion of the solution for the phosphate ion of the enamel. The writers suggest that this phenomenon of ionic exchange between tooth enamel and acidic groups of various foods may strongly influence the process of tooth destruction.

BRANCH, E. A. Mouth health teaching in the schools of North Carolina. *Bull. North Carolina Dent. Soc.* 22: 18, 1939.

The author, Director of the Division of Oral Hygiene of the State Board of Health of North Carolina, offers the four essential factors in teaching mouth hygiene in the schools of his state. 1. North Carolina has a dentist, recommended by the North Carolina Dental Society and appointed by the Governor, as a member of the State Board of Health. 2. North Carolina is the only state with a law requiring that a dentist be a member of each County Board of Health, provided a dentist lives within the con-

fines of each county. 3. North Carolina is one of the few states which have in their Boards of Health Divisions of Oral Hygiene on an equality with other divisions and directed by licensed dentists who devote their full time to the work. 4. The Division of Oral Hygiene of the North Carolina State Board of Health has, in addition to the Director, a staff of thirty licensed dentists and an educational consultant. The arrangement for mouth health programs in the counties of the state is that the county pays one-half of the expense and the State Board of Health pays the other half. The length of time spent in the counties depends both upon the needs and the amounts of the appropriations by the cunties, together with the allocation to the State Board of Health for this purpose. There is strong cooperation between the Division of Oral Hygiene and the North Carolina Dental Society.

GURLEY, J. E. Management of children in the dental office. *J.A.D.A.* 26: 384, (Mar.) 1939.

The principles laid down by this California pedodontist in practicing for children are: 1. The dentist must find his place between the parent and the child. 2. No other person but the dentist should address the child without permission to do so. 3. The child should never be deceived by the dentist. 4. The little patient should be informed as to what is to be done for him, and why, and how, as nearly as possible. 5. The dentist should not bring the child to his level of thinking or acting nor go the child's; a common level should be sought. 6. The dentist should develop the factors of his own personality—namely, appearance, attitude, courteousness, naturalness, sincerity, ability, and character. If we visualize dentistry as a health service and not as merely a money-making business, the result will lead to a fine and constructive professional life.

Have You Forgotten?

The maintenance and progress of the American Society for the Promotion of Dentistry for Children is dependent upon the cooperation of all its members in furthering the interests of the organization and their support in the prompt payment of the nominal yearly dues. A few members have neglected to take a scant minute to write a check for $3.00 to insure regular receipt of their REVIEW.

If you have a unit in your state, please send your dues to the State Secretary. This will enable each State Secretary to keep a more accurate record of the memberships in his state. In states that have no units, checks should be sent directly to the Secretary of the Society. When you receive your statement, send your check immediately and save the Society the expense of mailing you several notices.

—R. L. IRELAND, *Secretary.*

Vincent's Infection

Council on Dental Therapeutics, A.D.A.

Vincent's infection is described in the literature under the following terms, among others: Plaut's angina, Plaut's ulcer, Plaut-Vincent infection, acute ulcerative gingivitis, cancrum oris, ulceromembranous stomatitis, and ulceromembranous gingivitis. This is an infectious disease of the oral mucosa, usually acute, but sometimes chronic, characterized by fever, ulceration, swelling, tenderness of the soft tissues, gomphiasis, cervical adenitis and salivation.

Oral organisms usually exhibit little or no specificity. However, when a cover glass smear made from turgid, hemorrhagic, grayish, slough-covered gingivae contains fusiform bacilli and spirochetes in great abundance, the diagnosis probably is Vincent's infection. Culturally, Vincent's organisms are saprophitic anaerobes, which frequently enter as secondary invaders of previously debilitated tissue. Efforts to produce Vincent's infection experimentally have not been completely successful.

The first symptoms of the disease are a marked redness of the gingival crest and oral sepsis, followed by swelling and pain; ulceration, fetor and adenitis, gomphiasis, dysphagia, salivation and hemorrhage develop. The incubation period is unknown, as a sub-clinical infection may be present for months. Age incidence is insignificant, nor is there any apparent racial immunity. Prognosis is usually favorable, provided the patient cooperates fully with the dentist. On account of the similarity of oral symptoms of Vincent's infection to those of some blood dyscrasias, particularly malignant leukemia, it is frequently advisable to have a blood count.

The drugs used for topical application to infected mucosa are classified as spirocheticides, caustics, oxidizing agents and bacteriostatics. Drugs for parenteral administration are restricted to the arsenicals. A lengthy list of drugs, divided into the above classifications, is presented indicating the difficulties encountered in the treatment of this disease. It is suggested that smoking delays healing and should not be permitted. Diets rich in vitamin B are indicated. (J.A.D.A. 25: 2026, 1938).

N.M.P. Soluble — Not Acceptable for A.D.R.

N.M.P. Soluble (Lynch & Co., Denver, Colorado) is a product sold to the dental profession as an effective means of treatment for a wide variety of dental ills, such as Vincent's infection, oral infection, pyorrhea and "all local or oral infections which are open to the surface tissues." The advertising circular gives rather detailed instructions for the use of N.M.P. Soluble in Vincent's infection. Evidently the firm is not averse to increasing its sales of N.M.P. Soluble by having the dentist act as a detail man.

Although N.M.P. Soluble is alleged to be a new, synthetic organic chemical, which "Commands the field of oral infection," the firm has not

availed itself of the opportunity to submit evidence of the usefulness of this product to the Council. As far as the Council is aware, there is no evidence as to the lack of toxicity of this product, even though the firm states that "There is no danger if it is swallowed." Apparently from the statements in the advertising folder, the firm leans heavily on the dentist's skill in the promotion of its product. The chemist's report does not supply a basis for an answer to the question, "Why use N.M.P. Soluble at all?" but indicates that N.M.P. Soluble is essentially a solution of mercurated phenol (0.2%) in ethylene glycol. Since N.M.P. Soluble is a secret preparation, sold with unwarranted therapeutic claims, the Council finds it not acceptable for A.D.R. (J.A.D.A. 26: 469, 1939.)

Should Dentists Recommend a Dietary Program for Patients?

John C. Brauer, *Iowa City*

Since the dentist is the guardian of the hard and soft structures of the mouth, and he is, in a large measure, responsible for the dental health of his patients, it certainly becomes his duty to be informed as to the nutritional dental needs of the child. This does not imply that it becomes the dentist's prerogative to prescribe a diet in all cases, for there are some patients with deficiency diseases and allergies that warrant the advice of a competent physician. In no case, however, can the dentist be criticized for aiding in the dissemination of education in the realm of food requirements for adequate nutrition.

It has been accepted that every child needs at least one gram of calcium per day to promote optimum growth and development of the bones and teeth. This amount of calcium may be obtained by drinking a quart of milk per day. There are comparatively few foods that supply an appreciable amount of available calcium outside of milk and milk products. In addition, it is a well established fact that every growing child should have at least 400 U.S.P. units of Vitamin D per day. This may be obtained through the administration of one teaspoonful of cod liver oil. The liquid non-concentrates afford a better assimilation than the concentrates and also assure an optimum calcium retention within the body. Doses much below 400 U.S.P. units or its approximate equivalent (150 Steenback units) will not permit optimum calcium retention.

It is well for a dentist to recognize the above factors and also that an optimum nutritional intake is highly desirable and essential. One should not handicap a child during his or her growth and developmental stages, as so often happens unless one understands the minimum requirements.

The Importance and Detection of Mouth Habits

M. D. Edwards, *St. Petersburg, Fla.*

Among the most important causes of irregular teeth and the facial deformities so often seen are the habits of thumb-sucking, tongue thrusting, and tongue and lip-biting. The manifestations of these habits are quite varied. They range from a slight to a pronounced irregularity of the teeth, which may be combined with a marked deformity of the face. The amount of tooth irregularity and facial deformity will depend upon the particular habit in which the patient indulges and the length of time that it has been practiced. To appreciate the possibilities of mouth habits, dentists should become thoroughly familiar with the end-results.

Some habits are noticed by parents but often little or no attention is paid to them until they have interfered with occlusion. More should be done to call the attention of parents and teachers to the harmfulness of a child's "simple" little mouth habits. Occlusion is partly a responsibility of parents and teachers. Similarly, every dentist who attempts to do operative dentistry for children has a very important responsibility in the detection of mouth habits. In many cases, orthodontic treatment will not be needed if a habit is detected and corrected in its incipiency. Preventive orthodontics of this type certainly pays dividends in good occlusion.

Many a dentist fails to realize that this responsibility extends beyond the mere filling of a child's teeth. It seems a disgrace when one realizes how many dentists fail to recognize malocclusion of the teeth due to indifference, neglect, or ignorance. It should become routine in a child's examination to observe the patient with his teeth in occlusion, since it is impossible to detect some of the deformities that are caused by mouth habits when the child's mouth is wide open.

After one observes that a mal-relation of a child's teeth has occurred, it is not always easy to discover the cause. When it is discovered that the anterior teeth do not meet and that the case is progressing toward an open bite, then the problem is to find out what is causing the open relation. Is it due to growth or is it due to some outside pressure which influences occlusion? Tongue-biting is not uncommon, but frequently the habit will be less apparent to the observer than some of the other mouth habits, since the act is not always noticeable. When the dentist is suspicious that his patient has such a habit, he must observe every little movement that the patient makes with his mouth. A child will usually perform an unconscious act or habit more frequently and in a more pronounced manner when he is not conscious that he is being observed. By correcting a tongue habit early, it is possible to prevent future orthodontic treatment.

A tongue thrusting habit may separate and depress the lower anterior teeth. This habit is easily detected since the patient has difficulty in turning

his tongue edgewise and forcing it between his teeth. Lip-biting is not hard to detect because the habit is always visible; a child is usually more conscious that he bites his lip than that he bites his tongue. Lip-biting is often practiced through early adult life. Thumb-sucking is the only mouth habit which is usually detected by parents; in fact, it frequently becomes one of the bugbears of parenthood. When it persists, it is easy to detect, but frequently hard to break. Improper attitudes toward this habit on the part of parents often develop a "show-off" complex in the child and increase the difficulty one has in overcoming it. The development of a desire in the child to break this habit is by far the best orthodontic treatment for it. None of these habits will necessitate orthodontic treatment if detected and corrected early.

A bit of advice for the child which may well be incorporated in every lay talk to teachers, parents, and school children is "Keep everything out of your mouth—lips, thumbs, fingers, finger nails, and lead pencils—and keep your tongue from between your teeth."

Future Dentistry

Excerpts from a series of nine articles examining the future of dental practice and presented as a service of the Committee on Cooperation, of the American Association of Dental Editors.

It requires no gift of vision to foretell that dentistry will move forward on at least five fronts: education, research, establishing the cause of dental caries, children's dentistry, and the relations between the profession and government. Dentistry for children will assume increasing importance in the future because it is the basis of any thorough-going program of prevention. If the problem of dental caries is solved, the influences on the practice of dentistry for children will be tremendous, and it is very likely that this will make a definite imprint on all future dental practice.

—Harold Hillenbrand, Chicago

So great have been the achievements in the century now coming to a close that one finds it almost impossible to realize that no longer ago than 1820—only 119 years—there were not more than two hundred dentists in the United States and Canada, and many of these were itinerants, practicing their art along the Atlantic seaboard from Montreal to New Orleans. And now, as we stand on the threshold of a second century, it is altogether fitting that we should pause in our professional activities to celebrate an event of such importance as the first centenary of American dentistry. In September, 1939, in San Francisco, and in March, 1940, in Baltimore, three-day celebrations will be held to observe the birth of American dentistry as a scientific profession. This is our profession. To it we owe much. We are proud of its progress. We have faith in its future. But that future will depend upon what you and I do in the present. *—Arthur H. Merritt, New York City*

It cannot be contested or doubted that the progress of dentistry in the past has been due to a large extent to the advances in professional education. We may likewise expect the future of the profession to be affected by a better trained graduate. The advance of dentistry depends upon the graduation of men of quality and good citizenship, who possess the qualifications of practicing the scientific and technical phases of the profession. Individuals so prepared should be capable of rendering more creditable services, thereby creating a better dental profession. Dental education is striving to fulfill its responsibility in order to assure such a future.

—Robert W. McNulty, Chicago

Biologic research has laid the foundation for correct diagnosis and the proper treatment of dental and oral diseases. It matters not how strongly some method of treating a dental or oral disease is recommended by an enthusiastic clinician or manufacturer; unless this method is based on the fundamentals of chemistry, physiology, histology, and pathology, it will fail and soon be forgotten. Treatment of the pulp and of the periodontal tissues will be successful only if the pathology of these tissues is carefully considered. Too often, however, just the opposite method is followed: somebody devises or recommends what he thinks is a method for the "cure" or "eradication" of some lesion or condition, and then creates his own "made-to-order" tissue pathology in order to justify the clinical method in the eyes of his fellow practitioners. This procedure should be emphatically discouraged. There are many conditions and diseases of the teeth and mouth, the causes of which are unknown. There are good methods of treatment that can be relied upon, the exact working of which is not fully understood. The members of the dental profession should be made aware of the fact that an honest admission of lack of knowledge is far preferable to a psuedo-scientific, unsound explanation. *—Rudolf Kronfeld, Chicago*

It may be possible completely to control dental caries through dietary and hygienic measures, but the control will be greatly simplified if some specific factor can be found, the use of which will result in prevention. Cooperation in the matter of diet and hygiene is quite often difficult to obtain, and concerted dental health education with convincing evidence will be necessary to secure it. Future dental practice, we believe, will stress prevention much more than it has in the past, especially among children, and preventive measures, we hope, will be placed on a firm and rational foundation as a result of the scientific research now in progress.

—Robert G. Kesel, Chicago

In the future the dentist will have a new role as a counselor in dental health, paying close attention to the general hygiene of his child patients, cooperating with the physician in an effort to prevent disease, and helping the child to maintain a body which can resist it. He will know more about foods and food combinations and be able to give sound advice on dietary

problems as they relate to dental health. He will learn to understand children and parents to the extent that he can gain their cooperation in the establishment of a program for good dental health. Children will be seen much earlier in their lives and better care will be given the deciduous teeth. The expectant mother will visit the dentist to learn what she can do to assure her child of a sound dentition. *—George Teuscher, Chicago*

There is no immediate crisis in the dental health of the population, and the application of drastic plans intended to remove all difficulties in the distribution of dental care are liable to be more dramatic than effective. A long-range program, solidly grounded on an intensive investigation of the causes of dental caries and a widespread application of the knowledge derived therefrom, is the only satisfactory solution under the terms of our present knowledge, both dental and economic. The American Dental Association, through its House of Delegates, has already approved of such a plan in principle and has offered its facilities and cooperation for the establishment of such a program. The future must bring about such a relationship but not at a painfully excessive cost either to the public or to the profession. Now, more than ever, it is time for American dentistry to make those provisions and plans which will safeguard, for generations to come, its relations to the people and the government which they have chosen to represent them. *—Harold Hillenbrand, Chicago*

Anniversaries are always important as well as interesting; important because they cause us to survey the failures and successes of past years, and interesting because it sometimes takes an anniversary to stimulate us to that action. The coming centennial of dentistry gives the profession an opportunity for reflection and planning. If, after that reflection, we feel well pleased with the record that we have made, it is highly fitting that proper celebration be made. *—Alvin W. Bryan, Iowa City*

Our one hundredth anniversary may well be made a symbol of sacrifices that have been made by a profession which has had to prove a right to its existence and develop its educational and scientific aspects with little or no financial support or educational guidance from the universities of the country, and until recently, without sympathetic support of the profession of medicine. When we celebrate our one hundredth anniversary, this occasion should be made the beginning of a new era during which our objectives will largely be in the form of adjustments. Our services will need to be adapted to the social changes, our educational program focussed more upon community contacts and responsibilities, and our legislative efforts must include provisions for the maintenance on the part of the profession of a welfare attitude and competency to safeguard the public's interests.

—Marcus L. Ward, Ann Arbor

Recent Advances in Dental Public Health

Frank C. Cady, *Dental Surgeon, U. S. Public Health Service*

This summer there will be ready for distribution a revision of Public Health Bulletin No. 227, describing the dental public health services in the National and State governments. It may be interesting to the readers of the "Review" to learn in advance of the increase of facilities since the last survey in 1933.

Table I shows at a glance the increase in facilities and personnel in state boards or departments of health in the short period of five years. Included also is a report taken from a survey made by the Cleveland Child Health Association in 154 cities.

TABLE I

Dental Personnel in State and City Health and Education Departments in Thirty-five States and One Hundred Fifty-four Cities of Over 50,000 Population

Unit	1933* 12 States	1938 35 States	1938† 154 Cities
Dental members—state boards of health	15	23	..
Dentists, administrative and educational (full-time)	7	46	5
Dentists, administrative and educational (part-time)	2	3	10
Dentists, clinical (full-time)	16	65	159
Dentists, clinical (part-time)	37	36	359
Hygienists‡	13	53	215
Teachers‡	2	5	..
Nurses‡	0	5	15
Total	77	213	763

*Public Health Bulletin No. 227.
†From Survey made by Cleveland Child Health Association 1937-38—No report in 1933.
‡All hygienists, teachers, and nurses are employed full-time.

An activity new in the annals of public health dentistry is the graduate courses in dentistry for children offered practicing dentists. These courses were stimulated largely by the difficulties encountered in getting some of the dentists to provide competent service for children. These courses have been conducted by state health departments in cooperation with the state dental societies. They have been well attended and received enthusiastically by the dentists and are considered to be one of the most effective present methods for the promotion of public dental health. In the past two years they have been presented in ten states with others planned for this year.

A very important feature in facilitating the progress of dental health has been a number of outstanding studies made in the past few years pointing to the nature of the dental problem from a national public health viewpoint. These studies have made valuable contributions in the field of: (1) Incidence of dental defects in children and adults. (2) The effects of diet on dental pathology. (3) The epidemiology of dental fluorosis. (4) Growth and development of dental structures.

References for some of the outstanding work in this field include: (1) Gordon, S. M., *et al:* Dental Science and Dental Art. Lea and Febiger, Philadelphia. 1938. (A resume of the work of leaders in the field of dental research in which they collaborated in the preparation. It contains a complete bibliography on the subject matter treated.) (2) Public Health Bulletin No. 226: Dental Survey of School Children Ages 6-14 Years in 26 States—Government Printing Office, Washington. (3) Hollander, I. and Dunning, J. M.: Study by Age and Sex of the Incidence of Dental Caries in Over 12,000 Persons. Journal of Dental Research, 18: 43, (Feb.) 1939. (4) Palmer, C. E., Klein, H., Knutson, J. W.: Studies on Dental Caries—Nos. I, IV, V, VII—Public Health Reports (Reprints Nos. 1932, 1952, 1968, 1986)—Government Printing Office—Washington. (5) Britten, R. H.: A Study of Dental Care in Detroit, Michigan—Public Health Reports—53: 446, 1938. (6) Jay, P., Hadley, F. P., Bunting, R. W., and Koehnes, M.: Observations on Relationship of Lac. Acidophilus to Dental Caries in Children During Experimental Feeding of Candy. J.A.D.A., 23: 846, 1936. (7) Dean, H. T.: Mottled Enamel in South Dakota—Public Health Reports—54: 212, 1939.

What Price Deciduous Teeth?

John E. Gurley, *San Francisco*

V. Treating the Child's Teeth. Speaking specifically concerning the treatment of children's teeth, I shall present my conclusions after thirty years' experience, then proceed with a brief discussion. There are three factors involved in the treatment of children's teeth: (1) Food and nutrition. (2) Oral Hygiene at home (Food, Brush, and Dentifrice) and at the dental office. (3) Operative Dentistry.

Oral hygiene was an almost unknown factor. Some people did well in the provision of tooth brushes for different members of the family, but in many cases, the family tooth brush fitted in with the family towel and hair brush. Fathers, of course, did not stoop to brush their teeth. We begun to emphasize as just indicated the value of vegetables as a prophylactic agent, but now we emphasized the brush and dentifrice. The only decent brush on the market at that time was an English brush—all others were large and cumbersome. As to a dentifrice, we said, "Use any you like, just so it is not gritty." Now we must have the endorsement of the Council on

Dental Therapeutics of the American Dental Association and are careful to recommend a specific brush and a specific dentifrice. People do better when specifically advised.

This thirty year period is probably the most interesting and the most vital that dentistry ever has had or *will* have. In 1909, we had no novocain, no castings, no scientific cavity preparation, no scientifically tested method of treatment of diseased pulps, no radiography, no nutritional studies, and no research. It is true that some of these were being introduced; technicians (dentists) were busy developing the technical innovations; novocain, under a trade name, was on the market.

In filling cavities, the child's teeth were considered as only temporary, both by the profession and by the parents. *Cement* found extensive use, especially in the fissures of molars. Cavities were cut into teeth with undercuts and hopes that fillings would stay. They didn't, and parents were discouraged. A study of deciduous tooth anatomy became necessary: a modification of Black's teaching in cavity preparation was attempted, and progress was made. Today we follow the principles laid down by G. V. Black and have the same thought and aim in mind for the deciduous as for the permanent tooth. The pulp in the former is larger in proportion to the thickness of surrounding dentin and enamel, but a little broader cavity gives bulk of material and the filling will hold. We ran the gamut of gutta percha and cement, only to recognize that each has a place and a use. Gutta percha is splendid to use to fill all interproximal cavities during the time the work is being done. It provides a masticating surface, thus aiding in cleansing the mouth and forces the teeth into normal position. Amalgam is *per se* the best material for deciduous teeth. Copper amalgam has its place in pits or as a lining for deep cavities, but silver alloys are required to hold margins and contacts. In the early days, the selection of an alloy was based upon the battle between dealers—today we have the authority of the Research Commission of the A. D. A. and the Federal Bureau of Standards.

In these early days, every child, I dare say, presented at least one abscess. It is no wonder that about 1912, when the so-called Focal Infection Theory was introduced, dentists and physicians generally condemned the so-called dead tooth. Our knowledge of drugs in this early time was nil. We had no pharmacology. We knew a little chemistry. We used a great deal of oil of cloves, phenol, and Black's 1-2-3. We saw abscesses with fistulas. These were treated by forcing either of these latter two drugs, through the canals and fistula with soft rubber or gutta percha, then sealing more in the tooth for a few days. Sometimes it worked.

In 1904, Dr. J. P. Buckley introduced Formo-cresol (Lilly) to the profession. Formalin was the active agent. He presented a little pharmacology, but chiefly chemistry. Men feared it for they were taught the dangers of

formalin. It *is* dangerous, but it is efficient. Study and application of this drug taught me the value of theoretical (now called scientific) knowledge of a thing in its utilitarian application. Infections responded in splendid style and abscessed teeth were no longer the dread they had been. Formalin must be used carefully. It must be changed each 24 to 48 hours and not used more than 72 hours. Fistulas usually disappear upon application of Formo-cresol, sealed within the tooth, of course. It is generally no longer necessary to force medicaments through the fistula or, as was a common treatment, physiological salt solution by means of rubber or gutta percha or the Sub-q syringe.

As a filling material for root canals of deciduous teeth, we were told by some authors that alum was an essential part, since it took up any moisture, thus aiding in drying the canal. However, we soon recognized the fact that any filling which disappeared as the root was resorbed was satisfactory.

Devitalizations are accomplished by use of arsenic, sealed in the tooth for 48 hours—the pulp is removed, and the canal sterilized with chloral-thymol mixture, then filled with the paste above. Today we see very few abscesses and have practically no devitalizations. So far as permanent teeth are concerned, formerly we devitalized many, a daily occurrence—today it is nearly a lost art. If perchance a pulp must be removed from a permanent tooth, it is done under local anesthesia.

Nitrous oxide was used in many cases, but with inadequate machines and a lack of knowledge; patients were really asphixiated rather than anesthetized. With the improvement of machinery came increased sales, and all tried using gas, for anaelgesia at least, until we found that special skill was required. Today similar pressure is being used to sell gas machines, and no doubt each generation has to learn from its own experience.

It was and is a loss if a decidous tooth is removed for any cause before its time for exfoliation. We had no idea of missing teeth, although adults frequently said they had never developed certain ones. With the advent of the roentgen-ray, we found impacted teeth, missing teeth, root resorptions, and many conditions we knew not of. Probably the orthodontist, then in the embryonic state, needed the sympathy of the public and the profession more than any one else. It was his business then to "straighten teeth" and how elemental as compared with today! What a mouthful of bands, wires, etc., a youngster had to wear and what a mouthful of cavities he had when finished, not to mention troubles as he went along and the troubles of the orthodontist in the beginning. Dentists would not fill the child's teeth, "No use," they said, so they sent him to the poor orthodontist to do the best he could. Well, we have developed, scientifically, technically, professionally, and ethically.

The Vestibule Impression Technic and Its Value

Marvin C. Goldstein, *Atlanta*

Many of us probably often have asked, "How can we procure an accurate record model of a patient in a very few minutes?" Others of us want to know, "Of what actual value will this model be?" Quite often a frantic mother will bring her son to a dentist when she notices that his new incisor teeth are erupting slightly out of line. By taking an impression and thus securing a record, the dentist not only performs a service for which a fair charge can be made, but also becomes much better equipped to give intelligent advice to the parent at a later time. One must naturally have a technic that, though accurate, takes only a few minutes to perform. The simple technic of the vestibule impression fulfills both of these requirements. A cake of compound is heated in water at 130-140 degrees Fahrenheit. The patient's mouth is kept closed and his lips kept relaxed. When the compound is at the right consistency, it is shaped into a roll about three-quarters of an inch in diameter. It may be placed either on a horseshoe-shaped Bisco vestibule tray that has been previously adapted to fit the arch to insure uniform pressure, or it can be inserted directly into the patient's mouth. If the tray is not used, heavy finger pressure is applied along the occlusal plane of the patient's closed teeth, starting at one side and progressing on around to the opposite side. The compound is held in place a few moments until it becomes cool and firm. The impression is then removed by having the patient open his jaws. Just the act of opening usually frees the lower teeth and the impression is removed entirely with a downward and forward pressure. Care should be taken to avoid any distortion or constriction of the impression. The chilled impression is ready for pouring in plaster. If a base is desired on the cast, the impression is boxed above and below in a conventional manner which will make for convenience in pouring and will secure a neater model. The entire procedure for the completed model will take less than ten minutes' time.

Vestibule casts secured periodically can perform another valuable function. The young permanent anterior teeth are always closely watched by the parent because of an esthetic interest in the appearance of these teeth. If even one anterior tooth is out of line, the parent wants to know if an orthodontist should be consulted. Often this is necessary. If the general practitioner has a series of casts which show the amount of lateral growth which has taken place in the anterior segment of the jaws, he frequently can save his patient expense for orthodontic treatment by his own evidence for a favorable prognosis. Orthodontic treatment instituted at the most favorable time is relatively much less expensive than postponed treatment.

Similarly, there are times when the vestibule type of impression is the only method by which a record can be obtained. The author recently made a cast of a small girl who had a partial ankylosis of the mandible and could scarcely open her mouth. A simple form of treatment was advised and, by

means of this record, at a later date an evaluation of any change can be made. Other examples of useful vestibule casts are: extreme Class II conditions, open bite cases, and occlusions with protruding canines.

A final value of such impressions may be listed; the dentist gets an opportunity to study the child's teeth in occlusion, a most necessary and often overlooked item of the child's examination. A mere check of a child's occlusion frequently detects mouth habits and permits the institution of preventive orthodontics. The early correction of habits can often be accomplished as efficiently by the general dentist as by the trained orthodontist.

Souvenirs For Children

W. J. Pelton, *Washington, D. C.*

Gifts can become a very valuable aid in a dental office to control fear stimuli. The psychologists claim that the use of a counter-stimuli is an important method to use in dealing with the problem of fear in children. Gifts, then, are a counter-stimuli—a method of creating an interest in the environment of a dental office. Gifts are a means of bringing the more or less unpleasant dental appointment into a pleasant configuration. A child departing from a dental office with a trinket leaves with a pleasant memory; the unexpected (or expected) kindness promotes a good feeling toward the operator and toward the whole experience in the dental office. A gift produces a desire in the youngster to come back to his next appointment, if only to see what the new present will be. In all cases, the souvenir is exactly that—a present. It is never a reward, since every child receives one after each appointment regardless of his behavior.

The idea of presenting a young patient with a souvenir is not entirely new, but the exact reason has never been clearly defined. A search through the literature indicates that a child covets toys as much as an adult covets money or power. Next to parents, a child likes his toys and frequently the best thing a child can have happen to him is to receive a gift. If a youngster could have a wish come true, he often wishes for a toy.

When certain children have had unpleasant experiences in a dental office, a gift serves to recondition the child. In very young and apprehensive children a simple item can be constructed with materials found in all dental offices before the child has even been in the chair. Making the gift first serves to introduce him to the operator and materials, thus promoting a familiarity with a strange environment. Parts of the toy may be cemented and set aside until the appointment is ended. In doing this, the child readily understands the explanation as to why he cannot play with the toy immediately. Putting the toy aside, serves to promote cooperation and

eliminate inattention to the operations at the chair. Generally, the proper time to present the souvenir is at the termination of the appointment.

The question arises—what is considered a good gift? A practical gift would use the materials readily available in a dental office, since these are the panic-producing articles the child may fear. In this manner, the dentist instigates a good relationship and familiarity with articles which are apt to cause fright.

Precisely, the usable materials of an office are burs, sandpaper disks, cotton rolls, tongue depressors, applicators, adhesive tape, dental floss, gelatin capsules, mercury, safety pins, compound and plaster. Cotton rolls can be made into dolls by using pipe cleaners for the extremities and a sandpaper disk for a hat. Tongue depressors and small wooden applicator sticks can easily be converted into puppets and boats by the additional use of dental floss or adhesive tape. Attractive buckles and buttons can be reproduced in plaster from compound impressions of such articles purchased in the local novelty store.

Unusual buttons and pins are frequently obtainable rather cheaply (six for 10c) and can be given instead of reproducing them. Lead figures of soldiers, policemen, firemen, Indians, etc., may be purchased in novelty shops and ten cent stores for as little as five cents each. If one desires, similar figures can be cast from plaster by using rubber molds which are obtained from several firms that specialize in children's toys. At the moment very popular gifts for youngsters are the Disney characters. Rubber molds for the seven dwarfs are obtainable from the American Dental Association for fifty cents each. Molds for twelve of the most popular comic strip characters that interest the children, such as Dick Tracy, Orphan Annie, etc., are also on the market at twenty-five cents each.

The cost of the materials used need not be very great. One half a tongue depressor blade may be used for the hull of a boat and the applicator already used on the child for a treatment can be converted into a mast for the boat. On the next appointment the other half of the tongue depressor can be used to construct the hull of a differently designed boat.

In casting a number of the larger figures from plaster, a considerable saving can be affected by purchasing dental plaster from the local hardware store at a cost of approximately one half that of impression plaster. Additional work such as painting the figures may or may not be done as the operator sees fit. One method of stimulating interest in the child is by allowing him to exhibit his dwarf on the trophy shelf in the laboratory after he has painted it.

The souvenirs enumerated here are not educational toys. They are simply trinkets for the dentist to use in order to elicit interest and to waylay fears. Presenting gifts to a child patient is just one method of training the youngster to regard the dentist as a friend and the dental office as an attractive place.